

*I claim*  
~~Patent Claims~~

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1. Method for converting digital source data referring to source pixels in the raster of a first resolution into digital target data in the raster of a second resolution, whereby

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(a) the data are scaled by at least one scaling factor ( $s_x, s_y$ ),

(b) each source datum (1, 7, 7', 23, 33, 42) has a target image matrix (26, 27, 28, 29, 53, 54, 55, 56) allocated to it on the basis of a surround window (52a, 52b, 52c, 52d) surrounding the source pixel and the target data are determined from neighboring target image matrices (26, 27, 28, 29, 53, 54, 55, 56) such that each target pixel is directly formed from a source pixel taking the surroundings thereof into consideration,

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(c) each source datum is employed for smoothing the target data to be determined from all neighboring source data, and

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(d) the scaling and the smoothing are implemented such in a common processing step that

(d1) the target data are smoothed in the raster (23', 23'') of the source data (1, 7, 7', 23, 33, 42).

2. Method according to claim 1, whereby neighboring target image matrices (26, 27, 28, 29, 53, 54, 55, 56) are superimposed on one another for determining the target data or are joined without overlap.

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3. Method for converting digital source data in the raster of a first resolution into digital target data in the raster of a second resolution, whereby

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(a) the data are scaled by a scaling factor ( $s_x, s_y$ ) and are smoothed,

(b1) a scaling rule is prescribed from a plurality of selectable scaling rules,

(b2) a smoothing rule is prescribed from a plurality of smoothing rules,

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(c) a single scaling and smoothing rule is formed from the selected scaling rule and the selected smoothing rule, both a smoothing of the target data in the raster (23', 23'') of the source data (1, 7, 7', 23, 33, 42) as well as a scaling ensuing in

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$$\overline{a_2}$$

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56927 12. Method according to claim 10, whereby the index (49) is employed in the form of an index signal for driving an electronic circuit (51) that forms the target data (8, 10, 24, 30, 47) from the index signals.

13. Method according to one of the claims 10 through 12, whereby the source data (33) are stored byte-by-byte in a shift register (37), whereby an interrelated group of data (36, 36') are respectively shifted in the shift register (37) with each processing clock, as a result whereof the index (49) is formed from bits of the shift register (37) lying next to one another after the shifting of all data of the group.

14. Method according to one of the preceding claims, whereby the shift register (37) is filled according to the following rules with every processing clock:

(a)  $R_0$  through  $R_{(A-1)}$  remain unaffected and

(b)  $R_{(i+A)} = q(i/Q_y, Q_y - 1 - (i \% Q_y))$  and

$R_{(i+A)} = q(i/Q_y, i \% Q_y),$

whereby the following applies:

15  $R_i$ : value of the  $i^{\text{th}}$  register bit

$Q_x$ : window width in x-direction

$Q_y$ : window width in y-direction

$q(k,l)$ : value of the source pixel having the position (k, l)

$/:$  integer division

20  $\%:$  modulo division and

$A = Q_y * (Q_x - 1).$

56927 15. Method according to one of the preceding claims, whereby pixel data belonging to images are processed as source data (1, 7, 7', 23, 33, 42).

25 16. Method according to one of the preceding claims, whereby excerpts of the image having  $l \times m$  source pixels are respectively processed in common as window; in that target image matrices each respectively having  $n \times p$  target pixels are formed from each source pixel window; and in that the target pixels of neighboring target pixel matrices are deposited in a memory next to one another or overlapped.

30 17. Method according to claim 16, whereby neighboring target image matrices are overlapped with an OR-operation.

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18. Method according to claim 17, whereby the source pixel windows each respectively comprise 3 x 3 pixels for scaling factors  $Sf_x = Sf_y = 2.5$ ; in that exactly one target image matrix having 3 x 3 target pixels is formed from each source pixel window; and in that exactly 5 x 5 target pixels are formed from respectively four target image matrices by an OR-operation.

19. Method according to one of the preceding claims, whereby a grayscale value is allocated to each source pixel.

20. Method according to claim 19, whereby a scaling and/or smoothing ensues in the grayscale value raster.

10 21. Method according to one of the preceding claims, whereby a color value is allocated to each source pixel.

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22. Method according to claim 19, whereby a scaling and/or smoothing ensues in the color value raster.

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